

CLAIMS

What is claimed is:

1 1. An apparatus comprising:
2 a first adder to add a first branch metric value to a previous path metric
3 value to generate a first path metric value; and
4 saturating logic to detect a saturating condition when a most significant bit
5 ("MSB") of said first path metric value is a specified value and to responsively
6 substitute a predetermined maximum value for said first path metric value.

1 2. The apparatus as in claim 1 further comprising:
2 a comparator to compare said first path metric value or said
3 predetermined maximum value with a second path metric value or said
4 predetermined maximum value transmitted from a second adder, and to
5 responsively select a minimum one of said values.

1 3. The apparatus as in claim 2 further comprising:
2 an accumulator to store said minimum one of said values for subsequent
3 path metric calculations.

1 4. The apparatus as in claim 1 wherein said saturating logic comprises:
2 a multiplexer to select between said predetermined maximum value and
3 said new path metric value, wherein said value of said MSB operates as
4 selection logic to said multiplexer.

1 5. The apparatus as in claim 3 wherein said predetermined maximum
2 value is a maximum value that may be stored by said accumulator.

1 6. The apparatus as in claim 1 wherein said predetermined maximum
2 value is 7h7f.

1 7. The apparatus as in claim 2 further comprising:
2 a plurality of additional comparators to compare path metric values and
3 select a minimum for a plurality of additional accumulators.

1 8. The apparatus as in claim 7 wherein the total number of accumulators
2 is equal to a Viterbi trellis depth.

1 9. The apparatus as in claim 7 wherein the total number of accumulators
2 is equal to 64.

1 10. A computer-implemented method comprising:
2 adding a first branch metric value to a previous path metric value to
3 generate a first path metric value; and
4 detecting a saturating condition when a most significant bit ("MSB") of said
5 first path metric value is a specified value; and
6 responsively substituting a predetermined maximum value for said first
7 path metric value.

1 11. The method as in claim 10 further comprising:
2 comparing said first path metric value or said predetermined maximum
3 value with a second path metric value or said predetermined maximum value
4 transmitted from a second adder; and
5 responsively selecting a minimum one of said values.

1 12. The method as in claim 11 further comprising:
2 storing said minimum one of said values for subsequent path metric
3 calculations.

1 13. The method as in claim 10 wherein substituting comprises:
2 configuring a multiplexer to select between said predetermined maximum
3 value and said new path metric value, wherein said value of said MSB operates
4 as selection logic to said multiplexer.

1 14. The method as in claim 12 wherein said predetermined maximum
2 value is a maximum value that may be stored by said accumulator.

1 15. The method as in claim 10 wherein said predetermined maximum
2 value is 7h7f.

1 16. The method as in claim 12 further comprising:
2 comparing path metric values and selecting a minimum for a plurality of
3 additional accumulators.

1 17. The method as in claim 16 wherein the total number of accumulators
2 is equal to a Viterbi trellis depth.

1 18. The method as in claim 10 wherein the total number of accumulators
2 is equal to 64.

1 19. A machine-readable medium having code stored thereon which
2 defines an integrated circuit (IC), said IC comprising:
3 a first adder to add a first branch metric value to a previous path metric
4 value to generate a first path metric value; and
5 saturating logic to detect a saturating condition when a most significant bit
6 ("MSB") of said first path metric value is a specified value and to responsively
7 substitute a predetermined maximum value for said first path metric value.

1 20. The machine-readable medium as in claim 19 further comprising:
2 a comparator to compare said first path metric value or said
3 predetermined maximum value with a second path metric value or said
4 predetermined maximum value transmitted from a second adder, and to
5 responsively select a minimum one of said values.

1 21. The machine-readable medium as in claim 20 wherein said IC further
2 comprises:
3 an accumulator to store said minimum one of said values for subsequent
4 path metric calculations.

1 22. The machine-readable medium as in claim 19 wherein said saturating
2 logic comprises:
3 a multiplexer to select between said predetermined maximum value and
4 said new path metric value, wherein said value of said MSB operates as
5 selection logic to said multiplexer.

1 23. The machine-readable medium as in claim 21 wherein said
2 predetermined maximum value is a maximum value that may be stored by said
3 accumulator.

1 24. The machine-readable medium as in claim 19 wherein said
2 predetermined maximum value is 7h7f.

1 25. The machine-readable medium as in claim 20 wherein said IC further
2 comprising:
3 a plurality of additional comparators to compare path metric values and
4 select a minimum for a plurality of additional accumulators.

1 26. The machine-readable medium as in claim 25 wherein the total
2 number of accumulators is equal to a Viterbi trellis depth.

1 27. The machine-readable medium as in claim 25 wherein the total
2 number of accumulators is equal to 64.